

# Explorers Program Office

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**PI Master's Forum #7**

**Astrophysics Explorers**

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# Topics

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- ▶ Program Overview
- ▶ Organization and Missions
- ▶ Program Office Roles and Responsibilities
- ▶ Schedule and Risk Management Recommendations
- ▶ Earned Value Management
- ▶ Mission Assurance Recommendations



# Explorers Program Overview



1 of 2

- ▶ NASA's oldest, continuous program
  - Over 100 successful missions since 1958
- ▶ Program Objective—Frequent flight opportunities for world-class scientific investigations
- ▶ Uncoupled program of missions with unique science capabilities supporting heliophysics and astrophysics science goals



# Explorers Program Overview



2 of 2

- ▶ Mission class characterized by size, schedule, and budget cost caps
  - MIDEX
  - SMEX
  - Mission of Opportunity
- ▶ Missions solicited through HQ announcement of opportunity
- ▶ Missions developed in Principal Investigator mode
- ▶ Mission oversight/insight is obtained by the Explorers program office at GSFC during Phases B-D



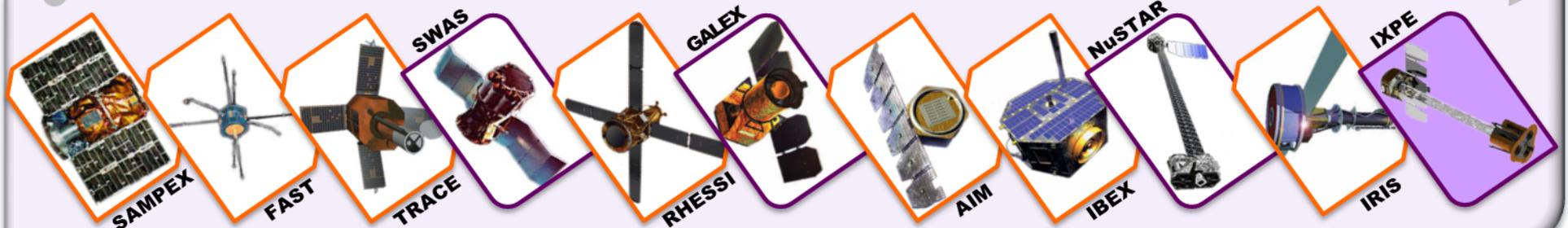
# Explorers Missions



## MIDEX



## SMEX



## UNEX • MO • INTERNATIONALS



 Astrophysics Missions

 Current Astrophysics Missions

 Heliophysics Missions

 Current Heliophysics Missions

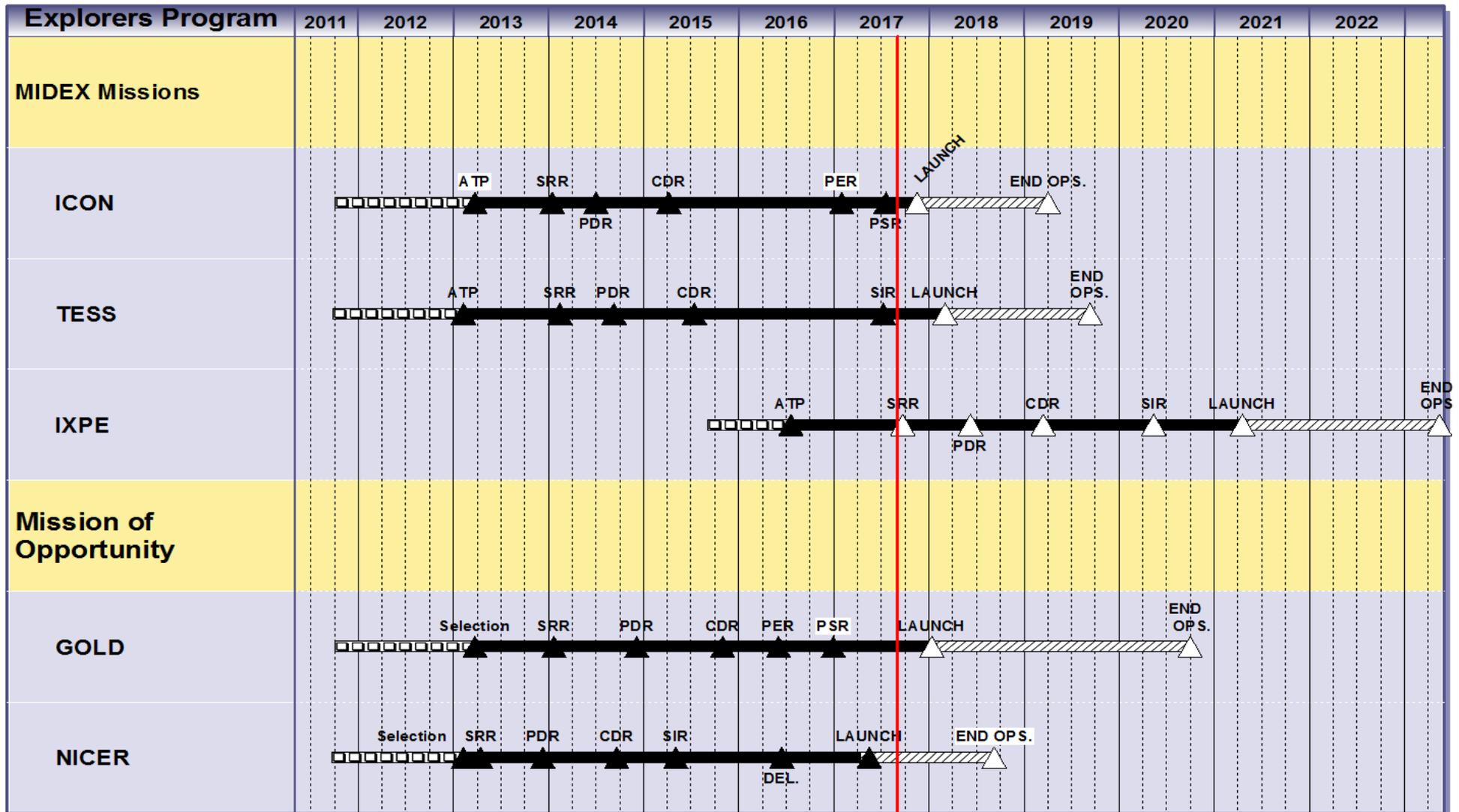




# Explorers Program Master Schedule



8/31/17



— Development

▨ Prime Mission



# Explorers Program Office Roles



1 of 3

- ▶ During Phase A
  - Participates in the kick-off meeting and PI Master's Forum
  - Provides funding and support to set up contracts
  - Firewalled from the missions during CSR development
  - Does not evaluate the missions during TMC process
  - Invited as an observer to the plenary sessions and site visits during the TMC evaluations



# Explorers Program Office Roles



2 of 3

## ▶ After Step 2 Selection

- Provides advocacy for the mission within the Agency and support to the PI to ensure mission success
- Ensures that the mission complies with all applicable government and NASA-specific policies and regulations.
- Provides comprehensive oversight of the mission development by conducting ongoing assessments of the mission's cost, schedule, and technical progress
- Provides mission status and independent assessment to NASA management through monthly reviews, weekly reporting, and timely notification of problems and resolution plans.



# Explorers Program Office Roles



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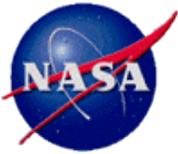
## ▶ After Step 2 Selection (continued)

- Coordinates the provision of all government-furnished services and equipment, such as space communication support, launch services, etc.
- Provides recommendations for the chair and membership of the standing review board and Goddard system review team (if required). Provides funding for the board/team.
- Provides technical authority (except for missions implemented at other centers)
- Appoints a mission manager and resources analyst for missions not managed by GSFC and all missions of opportunity



# Mission Manager Role/Responsibilities

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- ▶ Serves as the Goddard point of contact and the contracting officer's representative for the mission
- ▶ Leads the Explorers engineering, mission assurance and business teams in obtaining detailed cost, schedule and technical insight
- ▶ Provides specific support functions as required (e.g., launch vehicle interface, ground network interface)
- ▶ Helps the mission develop a system review plan that describes the organization and conduct of reviews
- ▶ Ensures that adequate government resources are applied to the mission



# Schedule and Risk Management



## Schedule Management

- ▶ Importance of detailed schedule development and management early is often overlooked
  - Should be developed as soon as possible during Phase B.
  - Required for an effective earned value management system.
- ▶ It is highly recommended that projects have a dedicated planner/scheduler for the lifecycle of the mission.

## Risk Management

- ▶ Establishing a robust risk management process early is crucial
- ▶ Mission teams usually hold a Risk Management Board monthly and as needed to identify and manage risks
- ▶ The Explorers team should participate in the project RMB, otherwise a separate risk briefing will be required to convey the risk posture of the mission.
- ▶ Guidance can be found in NPR 8000.4A, Agency Risk Management Procedural Requirements and GPR 7120.4D, Risk Management



# Earned Value Management (EVM) Requirements



- ▶ Per 7120.5E, projects in phases C and D with a life-cycle cost estimated to be greater than \$20M shall use EVM with an EVM system that complies with the guidelines in ANSI/EIA-748, Standard for Earned Value Management Systems
  - Implementation of EVM should start early in Phase B and planned during Phase A
- ▶ EVM system requirements shall be applied to appropriate suppliers in accordance with the NASA Federal Acquisition Regulation (FAR) Supplement and to in-house work elements
  - New mission class deviation released in November 2015, states that application of EVM on contracts from \$20M to \$100M is still in effect, although these contracts do not require validation by a cognizant agency or formal surveillance
- ▶ Tailoring is applied to Small Category 3 Class D projects as documented in the EVM for Small Category 3 Projects Guide
- ▶ Explorers has EVM experts on staff to assist projects with EVM implementation, analysis, and guidance



# Mission Assurance



- ▶ The Program Office owns the mission assurance requirements contained in the Mission Assurance Requirements document:
  - For Astrophysics MIDEX full missions – (Mission Risk Classification – NPR 7120.5 Class C)
  - For Astrophysics missions of opportunities – (Mission Risk Classification – NPR 7120.5 Class D)
  - For Heliophysics SMEX full missions and missions of opportunities – (Mission Risk Classification – NPR 7120.5 Class D)
  
- ▶ A draft Mission Assurance Implementation Plan (MAIP) and compliance matrix are required with the concept study report and together should indicate the mission's compliance status on all requirements contained in the MAR.
  
- ▶ During Phase B, the Program Office will review, discuss and negotiate the MAIP to completely understand and agree with the compliance position prior to approving the final MAIP.